Amendments to the Drawings:

The attached drawing sheet includes a change to sheet 5 (Fig. 6).

Attachment: Replacement Sheet (1)

REMARKS

This application has been carefully reviewed in light of the Office Action mailed on October 27, 2008. Applicant respectfully requests consideration of the foregoing amendment in light of the following remarks.

Summary of the Office Action

In the Office Action of October 27, 2008, Figure 6 was objected to, and claims 27-31 and 34-35 were rejected under 35 U.S.C. 112, first paragraph, as allegedly not being enabled by the specification. Claims 27-37 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over U.S. Patent Application Publication No. 2002/0080396 to Silverbrook et al. (hereinafter referred to as "Silverbrook") in view of U.S. Patent No. 6,613,403 to Tan et al. (hereinafter referred to as "Tan"), and further in view of U.S. Patent No. 6,962,450 to Brouhon et al. (hereinafter referred to as "Brouhon").

Status of the Application

Upon entry of the present amendment, claims 27, 29, 32 and 34 will have been amended. Accordingly, claims 27-37 remain pending in the application.

Objection to Figure 6

Figure 6 was objected to because it did not list Bk2 data in step S14 as described in the originally filed specification at paragraph [0042] (*see, e.g.,* page 2 of Office Action.) Accordingly, a replacement drawing is being submitted herewith that revises step S14 in Figure 6 to read "PREPARE C, M, Y AND BK2 DATA," as described in the specification. The objection to Figure 6 is, therefore, respectfully requested to be withdrawn.

The figures were furthermore objected to under 37 CFR 1.83 for allegedly not showing every feature of the invention specified in the claims, and in particular for not showing "..dots are recorded on virtual lattice points of the recording medium" as recited in previously presented claims 29 and 34 (*see, e.g.,* page 2 of Office Action). Applicant respectfully notes that claims 29 and 34 are being amended herewith to recite that the "dots are recorded with reference to virtual lattice points of the recording medium," as is discussed in further detail with regard to the rejection of the claims under 35 U.S.C. 112, first paragraph below. Thus, as the claims no longer specify that the dots are actually *recorded on* virtual lattice points, and instead recite that the dots are recorded *with reference to* the virtual lattice points as described in the specification (paragraph [0032] of publication of instant application), the figures are believed to be in compliance with 37 CFR 1.83, and the objection to the figures is therefore respectfully requested to be withdrawn.

Rejection of Claims 27-32 and 34-35 under 35 U.S.C. 112, First Paragraph

Claims 27-32 and 34-35 were rejected under 35 U.S.C. 112, first paragraph, as allegedly not being enabled by the specification (*see, e.g.,* pages 3-6 of Office Action mailed on October 27, 2009). This rejection is respectfully traversed.

In particular, the Office Action alleges that claim 27 is not enabled by the specification because "the specification, while being enabling for teaching an image processing unit configured to create a first data and a second data, does not reasonably provide enablement for the recording apparatus providing this functionality" (page 3 of Office Action mailed on October 27, 2009).

Applicant respectfully disagrees with this assertion. In particular, referring to flow chart shown in Figure 5, it is noted that the processing steps illustrated therein include steps to "read black spot pattern data" (step S1), "read record data" (step S3), "prepare Bk data" and "prepare C, M, Y data" (steps S2 andS4), "synthesize" the data (step S5) and "record" the data (step S6). With regards to which device performs these steps, it is furthermore taught that "[s]teps **S1** to **S5** shown in **FIG. 5** may be performed by the host device **500** *or the recording apparatus 100* (emphasis added). Thus, the specification as originally filed clearly teaches that the *recording apparatus itself* may be capable of reading pattern data and record data to prepare (e.g., create) the first and second recording data, and may also be capable of synthesizing the first and second data for forming an image on a recording medium, as in the claim.

It is furthermore noted that, with respect to such reading and processing functions, it is disclosed in at least in one embodiment that "data of characters and images to be recorded is transmitted to the recording apparatus **100** from a host device **500**, and the data is stored in a receive buffer **401**" (paragraph [0024] of publication of instant application) and furthermore that "[t]he data stored in the received buffer **401** is processing into data for recording under the control of the CPU **402** "(paragraph [0025] of publication of instant application). Thus, it can be understood from this disclosure that the recording apparatus may be capable of obtaining data from the host device (e.g., pattern data and recording data), for example via a received buffer **401**, and may also be capable of processing the data (e.g., creating first and second recording data by reading the pattern data and recording data), for example via the CPU **402**, for recording the image based on the data.

Accordingly, it is considered that one of ordinary skill in the art would understand, based on the disclosure of the originally filed specification, how to make and use the invention as recited in claim 27 and claims 28-31 depending therefrom, without requiring undue experimentation thereof, and thus claims 27-

31 are considered to be in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph.

Claims 29 and 34 were also rejected under 35 U.S.C. 112, first paragraph as allegedly not being enabled because "the specification, while being enabling for black spots being recorded on the recording medium with reference to assumed lattice points (virtual lattice points), does not reasonably provide enablement for dots being recorded on virtual lattice points" (Page 5 of Office Action mailed on October 27, 2008.) Without conceding to the basis for this rejection, Applicant is nonetheless, in the interests of expediting prosecution of the case, amending claim 29 herewith to recite "wherein the dots are recorded with reference to virtual lattice points of the recording medium" (underline added), and claim 34 is being similarly amended. The claims as amended are thus believed to be enabled by the originally specification, which discloses that "black spots are recorded on the recording medium **105** *with reference to* assumed lattice points" (emphasis added, paragraph [0032] of publication of instant application). Accordingly, it is considered that one of ordinary skill in the art would understand how to make and use the invention as claimed on the basis of the originally filed disclosure, and thus claims 29 and 34 are believed to be in compliance with the enablement requirement of 35 U.S.C. 112, first paragraph.

Finally, claims 30 and 35 were rejected under 35 U.S.C. 112, first paragraph, as allegedly not being enabled because while "[t]he specification provides support for a two types of Bk ink-discharging recording heads ... [t]he specification fails to teach the use of at least two recording heads at the same time to produce the image" (pages 5-6 of Office Action). Applicant respectfully disagrees with this assertion, and notes that the specification as originally filed clearly teaches that "[t]he second embodiment involves use of two types of Bk ink-discharge recording heads: one is for discharging a Bk1 ink containing carbon and the other is for discharging a Bk2 ink not containing carbon ... [and] [a]s in the first embodiment, a positional information image according to black

spot pattern data and the other image according to ordinary image recording data are recorded at one time" (paragraph [0045] of publication of instant application.) Accordingly, the specification clearly teaches the use of two ink-discharge recording heads that discharge different inks to concurrently record image data therewith. Also, the specification clearly describes an example of a recording head that is capable of discharging ink in a recording apparatus to record data on a recording medium (*see, e.g.,* paragraphs [0020]-[0023] of publication of instant application.)

Applicant respectfully notes that, in order to comply with the enablement requirement under 35 U.S.C. 112, first paragraph, the disclosure of the application should be such that one of ordinary skill in the art would understand how to make and use the invention, without requiring undue experimentation (*see, e.g.,* MPEP §2164.01). In the instant application, a description of the activation and use of a recording head is provided for an embodiment of a recording apparatus, in such a way that one of ordinary skill in the art would understand how to make and use the recording head to record an image on a medium with the recording apparatus, without having to perform undue experimentation. The instant application also provides a description and explanation of a method for concurrently recording image data with different inks using two such recording heads in a recording apparatus. Accordingly, it is considered that it would be well within the skill level of one of ordinary skill in the art to make and use the invention as claimed, by using two recording heads in the recording apparatus, without requiring undue experimentation, and thus claims 30 and 35 are believed to be fully enabled by the specification as originally filed.

Accordingly, the rejection of claims 27-31 and 34-35 under 35 U.S.C. 112, first paragraph, as allegedly not complying with the enablement requirement, is respectfully requested to be withdrawn.

Rejection of Claims 27-37 under 35 U.S.C. 103(a) over Silverbrook, Tan and Brouhon.

Claims 27-37 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over Silverbrook, Tan and Brouhon (*see, e.g.,* pages 6-10 of Office Action). This rejection is respectfully traversed.

Claim 27 is not obvious over Silverbrook, Tan and Brouhon, because the cited references do not teach or suggest "a recording apparatus for forming an image on a recording medium, *using at least a first recording head for discharging a first black ink and a second recording head for discharging a second black ink,*" (emphasis added) where the apparatus comprises "an image processing unit configured to create a first recording data by reading pattern data for recording positional information image representing positions on a recording medium and to create a second recording data by reading recording data for recording an image and *synthesize the first recording data and the second recording data,*" (emphasis added) and "a recording control unit configured to *execute recording of the first recording data by the first recording head and recording of the second recording data by the second recording head concurrently, based on the synthesized recording data,*" (emphasis added) and wherein "a first black ink detectable by a predetermined detector is used to record the positional information image and cyan ink, magenta ink, yellow ink, and a second black ink, which are undetectable by the predetermined detector, are used to record the image," as recited in the claim.

Silverbrook teaches an "interface surface printer using invisible ink" (title) for the printing of netpages that are "invisibly tagged with references to an online description of the page" (paragraph [0148]), for example with infrared-absorptive ink, such that markings made with a netpage pen on the surface of the netpage can be "simultaneously captured and processed by the netpage system (paragraph [0148].) With regards to the "netpage printer" that is capable of

printing the netpage, Silverbrook teaches that the netpage printer "receives subscribed netpage documents from netpage publication servers **14**" (paragraph [0218]), and that "once the printer has received the complete page layouts and objects that define the document to be printed, it can print the document" (paragraph [0220]). Thus, Silverbrook teaches a netpage printer that prints a netpage having invisible markings thereon upon receiving the data for printing from a server.

However, Silverbrook does not teach or suggest that the netpage printer is capable of _synthesizing first recording data and second recording data_, as in the recording apparatus as claimed. Instead, Silverbrook merely teaches that the netpage printer receives data for printing from a server, as discussed above, and does not teach or suggest that the netpage printer itself is capable of performing processing or synthesizing of the data. Similarly, Silverbrook also does not teach or suggest that the netpage printer is _capable of creating first recording data by reading pattern data for recording positional information, and creating second recording data by reading recording data for recording an image_, as in the claimed recording apparatus. Instead, Silverbrook even teaches against such processing and/or synthesizing of data performed by netpage printer, by teaching that [a]part from identity and security settings in non-volatile memory, the netpage printer need not contain any persistent storage" (paragraph [0217].) Thus, it can be assumed that any processing that may be performed on the netpage occurs in the server, and not in the netpage printer, with the netpage printer merely receiving the processed data from the server for printing. Thus, as Silverbrook does not teach, and even teaches against performing processing of the data _in a recording apparatus_, such as creating of the first and second data by reading pattern data of positional information and recording data of an image, and synthesizing such first and second data, it is considered that the claimed recording apparatus is not obvious over the netpage printer of Silverbrook.

The claimed recording apparatus is also not obvious over the netpage printer of Silverbrook, because Silverbrook does not teach or suggest a recording control unit that executes recording of the *first recording data by a first recording head* that discharges a first black ink that is detectable by a predetermined detector, and executes recording of the *second recording data by a second recording head* that discharges a second black ink that is undetectable by the predetermined detector. Instead, Silverbrook teaches that the netpage printer "simultaneously prints cyan, magenta, yellow, black, and infrared inks" (paragraph [0243]), but does not teach or suggest that such printing occurs via the used of first and second recording heads to concurrently execute recording with both detectable and undetectable black inks, as in the claimed recording apparatus. Thus, it is considered that one of ordinary skill in the art, based on the teachings of Silverbrook, would not have found it obvious to provide a recording apparatus with a recording control unit that executes recording of the first and second data concurrently with first and second recording heads, as in the claimed recording apparatus.

It is furthermore noted that Silverbrook does not teach or suggest an image processing unit that creates first recording data by *reading pattern data for recording positional information image representing positions on a recording medium*, as recited in claim 27, such as for example positional information image representing positions formed by combining positions of a plurality of spots on the recording medium, as in claim 28, and even positions corresponding to dots on virtual lattice points of the recording medium, as in claim 29. Instead, Silverbrook teaches providing the invisible tags that *correspond to an online description of the page*, but does not teach or suggest *reading pattern data* for recording positional information to create the first data.

Accordingly, as Silverbrook does not teach or suggest the claimed image processing unit that *creates and synthesizes* the first and second recording data *from pattern data for recording positional information image representing*

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positions on a recording medium and recording date for recording an image, respectively, and even teaches against such processing and synthesizing, and as Silverbrook also does not teach or suggest executing recording of the first and second data _with the first and second recording heads_, it is considered that the recording apparatus as claimed is not obvious over the netpage printer of Silverbrook.

Brouhon does not make up for the deficiencies of Silverbrook. Instead, in the section to which the Office Action refers, Brouhon teaches that "[i]t is known to use documents having such position identification pattern in combination with a pen having an imaging system, such as an infra red sensitive camera" (column 1, lines 29-34.) However, as understood by Applicant, Brouhon does not teach or suggest _a recording apparatus_ that has an image processing unit to _create first recording data by reading pattern data for recording positional information image representing positions on a recording medium and second recording data by reading recording data for recording an image_, and _synthesize the first recording data and the second recording data_, and also does not teach or suggest that the recording apparatus has a recording control unit that executes recording of the first recording data _by the first recording head that discharges a first black ink detectable by a predetermined detector_, and executes recording of the second recording data _by the second recording head that discharges a second black ink that is not detectable by the predetermined detector_. Thus, as neither Silverbrook nor Brouhon teach or suggest the recording apparatus having either the image processing unit or the recording control unit as claimed, it is considered that claim 27 is patentable over the teachings of the combined references.

Tan also does not make up for the deficiencies of Silverbrook and Brouhon. In the section to which the Office Action refers, Tan teaches that colorants can be added to printing inks, with the colorants preferably being free of carbon black (_see, e.g.,_ column 9, lines 10-24). However, as understood by

Applicant, Tan does not teach or suggest *a recording apparatus* that has an image processing unit to *create first recording data by reading pattern data for recording positional information image representing positions on a recording medium and second recording data by reading recording data for recording an image*, and *synthesize the first recording data and the second recording data*, and also does not teach or suggest that the recording apparatus has a recording control unit that executes recording of the first recording data *by the first recording head that discharges a first black ink detectable by a predetermined detector*, and executes recording of the second recording data *by the second recording head that discharges a second black ink that is not detectable by the predetermined detector*. Thus, as neither Silverbrook, Brouhon, nor Tan teach or suggest the recording apparatus having either the image processing unit or the recording control unit as claimed, it is considered that claim 27 is patentable over the teachings of the combined references.

Claims 28-31 depend from claim 27, and thus are also patentable over Silverbrook, Brouhon and Tan for at least the same reasons as their base claim.

Regarding claim 32, it is noted that this claim is directed to a method for forming an image on a recording medium via a process that is similar to the functions performed by the recording apparatus of claim 27. In particular, the method of claim 32 comprises "*creating a first recording data by reading pattern data for recording positional information image representing positions on a recording medium* and creating a second recording data by reading recording data for recording an image and *synthesizing the first recording data and the second recording data*," and "*executing recording of the first recording data by the first recording head and recording of the second recording data by the second recording head concurrently*, based on the synthesized recording data," wherein "a first black ink detectable by a predetermined detector is used to record the positional information image and cyan ink, magenta ink, yellow ink, and a second black ink, which are undetectable by the predetermined detector,

are used to record the image." Thus claim 32, as well as claims 33-37 depending therefrom, are considered to be patentable over the Silverbrook, Brouhon and Tan references, for at least the same reasons as claim 27.

Accordingly, as claims 27-37 are not obvious over the combined teachings of Silverbrook, Brouhon and Tan, the withdrawal of the rejection of these claims under 35 U.S.C. 103(a) over these references is respectfully requested.

CONCLUSION

Applicant respectfully submits that all of the claims pending in the application meet the requirements for patentability, and respectfully requests that the Examiner indicate the allowance of such claims. Any amendments to the claims which have been made in this response, and which have not been specifically noted to overcome a rejection based upon prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

If any additional fee is required, please charge Deposit Account Number 502456. Should the Examiner have any questions, the Examiner may contact Applicant's representative at the telephone number below.

Respectfully submitted,

1/21/2009   /Abigail Cotton/

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